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# Pesticide Fact Sheet Number 112.1: Lead Arsenate

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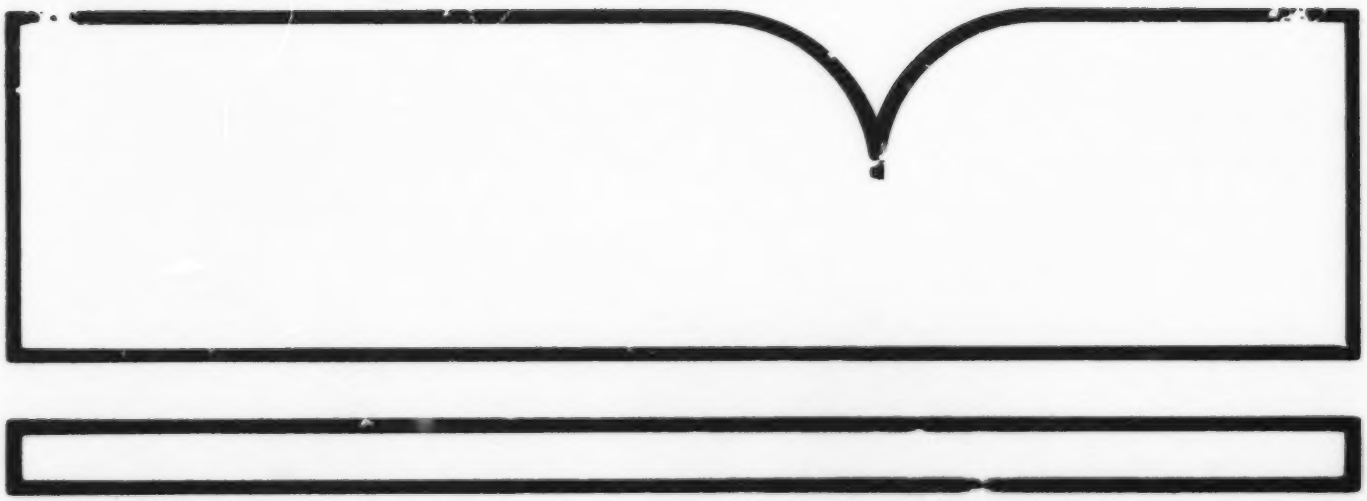

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for lead arsenate

>This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reinssuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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EPA

# Pesticide Fact Sheet

Name of Chemical: Lead Arsenate
Reason for Issuance: Proposed Tolerance Revocation
Date Issued: July - 1990
Fact Sheet Number: 112.1

## I. DESCRIPTION OF CHEMICAL

COMMON NAME: Lead Arsenate
CHEMICAL NAME: Acid Orthoarsenate - $PbHAsO_4$
Basic Orthoarsenate - $Pb_4(PbOH)(AsO_4)_3$

TRADE NAMES: Lead Arsenate,
EPA SHAUGHNESSY CODE: Standard (Acid) - 013502
Basic - 013503
CHEMICAL ABSTRACTS SERVICE (CAS) NUMBER: 7778-40-9
PESTICIDE TYPE: Growth regulator, Insecticide, Herbicide and Fungicide
PESTICIDE FAMILY: Inorganic arsenicals
U.S. AND FOREIGN PRODUCERS: Mechema Chemicals (U.K.)

## II. USE PATTERNS AND FORMULATIONS

• Lead arsenate was registered as a growth regulator on citrus to hasten maturity and control acidity. It was applied by spray blast at a rate of 1.3 lbs active ingredient/acre.

• Lead arsenate was registered as a foliar insecticide which was applied by aerial dust at a rate of 1.7 lbs active ingredient/acre. It was also used in bait boxes to kill ants and silverfish.

## III. SCIENTIFIC FINDINGS

### - CHEMICAL CHARACTERISTICS

Lead arsenate is a pentavalent form of inorganic arsenic. It normally exists as white crystals with no discernible odor. Lead arsenate contains 22% arsenic and is very slightly soluble in cold water. The melting point is 1042°C; the specific gravity is 7.80 and the molecular weight is 374.12. Technical lead arsenate consists of 95-98% lead arsenate. Under most conditions, basic lead arsenate is more stable than acid lead arsenate.

- TOXICOLOGICAL CHARACTERISTICS

Inorganic arsenical compounds have been classified as Group A, or known human carcinogens.

Inorganic arsenicals have been assayed for mutagenic activity in a variety of test systems ranging from bacterial cells to peripheral lymphocytes from humans exposed to arsenic. The weight of evidence indicates inorganic arsenical compounds are mutagenic.

Evidence exists there is teratogenic and fetotoxic potential based on intravenous and intraperitoneal routes of exposure; however, evidence by the oral route is insufficient to confirm lead arsenate's teratogenic and fetotoxic effects.

Inorganic arsenicals are known to be acutely toxic. The symptoms that follow oral exposure include severe gastrointestinal damage resulting in vomiting and diarrhea, and general vascular collapse leading to shock, coma and death. Muscular cramps, facial edema and cardiovascular reactions are also known to occur following oral exposure to arsenic.

- ENVIRONMENTAL CHARACTERISTICS

Studies to demonstrate lead arsenate's fate must take into account the fact that inorganic arsenicals are natural constituents of the soil, and that forms of inorganic arsenicals may change depending on environmental conditions. Based on limited data, lead arsenate is not predicted to leach significantly.

- ECOLOGICAL CHARACTERISTICS

Lead arsenate is moderately toxic to birds, slightly toxic to fish and moderately toxic to aquatic invertebrate species.

## IV. BACKGROUND

On October 18, 1978, EPA issued a Notice of Rebuttable Presumption Against Registration (RPAR)--now called Special Review--of pesticide products containing inorganic arsenic (as well as creosote, coal tar, coal tar neutral oils, and pentachlorophenol). On January 2, 1987, EPA proposed to cancel most registrations for inorganic arsenicals, including the food uses of lead arsenate, based on acute toxicity from accidental ingestion and carcinogenic risks to workers.

The growth regulator use of lead arsenate was voluntarily cancelled in 1987, and an existing stocks provision was granted until all stocks had been exhausted. At that time, it was

estimated that there was only enough existing stock to treat two to three percent of the Florida citrus crop. The registrations of food use products for the non-growth regulator uses of lead arsenate were cancelled in 1988 (See 53 FR 24787). In that Notice, the sale, distribution and use of the non-growth regulator products containing lead arsenate were prohibited after August 1, 1988.

## V. PROPOSED TOLERANCE REVOCATION

EPA is proposing to revoke all tolerances for lead arsenate, which are found at 40 CFR 180.194. The insecticidal use of lead arsenate was cancelled effective August 1, 1988, with no provision for use of existing stocks. The sole registrant of the remaining growth regulator use requested voluntary cancellation in 1987. The registrant was granted sale and use of existing stocks until stocks were depleted. No action levels will be recommended to replace tolerances proposed to be revoked. Environmental contamination of untreated crops from past use of lead arsenate is not expected.

## VI. REGULATORY POSITION AND RATIONALE

EPA is proposing to revoke all tolerances for lead arsenate because there are no remaining domestic registrations for lead arsenate and no other pesticides that are registered which require the "combined lead" tolerance. No action levels are being recommended since it is unlikely that there are any remaining stocks of lead arsenate and since EPA believes any treated commodities have passed through the channels of trade.

## VII. CONTACT PERSON

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